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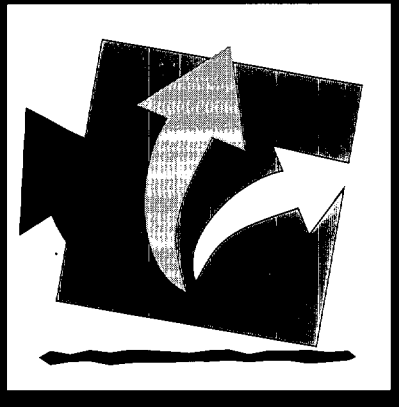

# Labor Markets and Poverty in Bulgaria

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* World Bank. The report was produced as background paper for the Bulgaria Poverty Assessment study. Ms. Mamta Murthi was the Team Leader. The views are those of the author and should not be attributed to the World Bank.

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# LABOR MARKETS AND POVERTY IN BULGARIA

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**Abstract**

Economic transition in Bulgaria has been associated with the emergence of unemployment, the fall in real wages and a substantial increase in wage inequality. The ranks of low paid workers have grown, and their relative wage status has substantially deteriorated. Unemployment is of long duration. A part of the problem is that the unemployed have excessive wage expectations. Their reservation wages far exceed the wages that employers actually offer for people of given qualifications. The reservation wages hardly fall with the duration of unemployment, which implies that job search is not adaptive. The receipt of unemployment benefits does not seem to reduce the job search effort. The transition hit the hardest the low skilled workers among whom both the incidence of unemployment and low-pay is the highest. Poverty in Bulgaria tends to be a result of both low (relative) earnings and low household labor supply, which often go hand in hand. However, work does not keep families out of poverty: the 'working poor' account for one-third of all poor. Moreover, poverty incidence is quite high even among families with two earners. Thus, Bulgaria does not conform to the usually observed pattern whereby two earners effectively protect against poverty.

# I. LABOR FORCE DEVELOPMENTS AND UNEMPLOYMENT

## Changes in the labor force

1. Since 1995 the labor market in Bulgaria has been slack but relatively stable (Table 1.1). The labor force participation rate has remained at a low level of 52%, reflecting in part the discouraged worker effect. The unemployment rate in June 1995 was 2 percentage points lower than in two years earlier.[1] This fall could be deemed as an achievement, however it reflects stalled and delayed restructuring rather than a more dynamic labor market. The employment rate has not increased and is ratcheted at a low level: only 45 of working age population in Bulgaria have jobs. All these figures present a picture of a stagnant labor market with limited employment opportunities. It is not only unemployment that is a problem, but also a low labor force participation, which both signify underutilization of labor resources.

**Table 1.1 Changes in the labor force, 1994-1997**

| | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|
| Labor force participation rate | 53.4 | 52.2 | 52.5 | 51.9 |
| Unemployment rate | 20.0 | 15.7 | 13.5 | 13.7 |
| Employment rate | 42.7 | 44.0 | 45.4 | 44.8 |

Notes:
1. June data
2. Labor force participation rate = (Employment + Unemployment)/Population aged 15+
3. Employment rate = Employment/Population aged 15+
4. Unemployment rate = Unemployment/Labor force

Source: Employment and Unemployment, various years, NSI.

2. **Labor market transitions**. Transitions across employment, unemployment and inactivity are low, which is yet another indication of the stagnant labor market in Bulgaria (Table 1.2). In particular, the probability that an unemployed person will find a job within twelve months is extremely low, amounting to 6.2%. This is roughly one-sixth of the yearly exit rate from unemployment observed in Poland, and less than one-eight of those prevailing in high-unemployment European countries such as Spain (Boeri, 1998). An unemployed person in Bulgaria has an extremely low chance to find a job. Many of the unemployed (11%) become discouraged by the futility of their job search and withdrew from the labor force.

[1] The data come from the Labor Force Survey, which in principle should cover employment in the informal sector.

3. At the same time, the yearly inflow into unemployment is moderate, similar to that observed in Poland. A probability that an employed person becomes unemployed within a year is 3.5%. Given the substantial labor market slack, the flow from inactivity to employment or unemployment is very low (about 1%). Few people decide to enter the labor market, and even fewer succeed.

**Table 1.2 Yearly labor market flows, 1996/1997**

| | Presently | | |
|---|---|---|---|
| 12 months ago | Employed | Unemployed | Inactive |
| Employed | 94.5 | 3.5 | 2.0 |
| Unemployed | 6.2 | 82.5 | 11.3 |
| Inactive | 1.0 | 0.7 | 98.3 |

Source: IHS 1997.

4. Thus, unemployment in Bulgaria is a large stagnant pool. This is reflected in a high incidence of long term unemployment and a long duration of job search (Table 1.3). Six out of ten unemployed are jobless for more than one year. Four out of ten are jobless for more than two years. The steady-state average duration of a completed unemployment spell is 35 months, and has increased since 1995.[2]

**Table 1.3 Duration of unemployment**

| Duration, months | 1995 | 1997 |
|---|---|---|
| | *In percent* | |
| Less than 1 month | 3.1 | 2.9 |
| 1 – 5 | 17.3 | 19.9 |
| 6 – 11 | 12.0 | 15.0 |
| 12 – 23 | 19.0 | 18.5 |
| 24 + | 48.5 | 43.7 |
| Steady-state average duration (months) | 32 | 35 |

Note: The number of unemployed who have duration of less than one month have been taken as the monthly inflow. Average duration of a completed unemployment spell was estimated under the assumption that inflow = outflow (steady-state).

Source: Employment and Unemployment, 2/'95 and 2/'97, NSI, Sofia.

[2] That is, it is assumed that outflow from unemployment equals inflow to unemployment (steady state). If the unemployment is growing – which seems to be the case in Bulgaria – then the actual duration of completed unemployment spells is longer than that estimated under the assumption of the steady state.

5. The large pool of the long-term unemployed – over 300,000 people – is a particularly worrisome feature of the Bulgarian labor market.[3] The long term unemployed are disproportionately persons with low skills: 45% of them have only primary or lower education. The skills they possess and their motivation tend to erode as joblessness persists. Moreover, employers tend to treat long duration of unemployment spells as a signal of intrinsically low productivity. These factors cause that the probability of finding a job decreases with the duration of unemployment.

6. Thus, there is an incipient danger that a relatively large group of persons with limited employability will develop. The capacity of the Bulgarian labor market to reintegrate a large number of jobseekers into gainful and productive employment may prove to be severely limited, even when the economic growth resumes. According to existing evidence, increasing demand for labor has relatively little impact of flows from unemployment to jobs (Boeri, 1995). The long-term unemployed are at a particular disadvantage, likely to lose the competition for jobs to those who have better skills and are not stigmatized by unemployment.

7. **Profile of unemployment**. The logit regression allows one to determine a net (independent of other variables) impact of different variables on the probability of being unemployed (Table 1.4).[4] Persons running the highest risk of unemployment are young, with low educational attainment, of Gypsy ethnicity. The role of educational attainment is particularly pronounced: a worker with primary education faces odds of being unemployed 4 times higher than a worker with an university diploma, 2.3 times higher than a worker with secondary vocational education, and 1.9 times higher than a worker with secondary general education. Secondary earners (especially children) are more likely to be unemployed than primary earners (household heads). The odds that a son/daughter is unemployed are 1.4 times higher than that of the household head. Single persons are more likely to be unemployed than married ones. *Ceteris paribus*, women are not at a significantly higher risk of unemployment than men.

8. This profile of unemployment is similar to that observed in other European countries. Two features deserve to be highlighted: (a) the strong link between unemployment and educational attainment, and (b) a higher risk of unemployment among secondary earners compared with primary earners. The first factor suggests investment in education is the best protection against unemployment, and in consequence poverty. The second factor probably mitigates the impact of unemployment on poverty, although the relationship between poverty and the family status of an unemployed person is not straightforward.[5]

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[3] Long-term unemployment is defined as unemployment lasting for more than one year.

[4] Pissarides and Wadsworth (1990) contains similar analysis for the UK, and Rutkowski (1998) for FYR Macedonia.

[5] As documented later, household with an unemployed secondary member are more likely to be poor than households with an unemployed head. A likely cause of this apparently paradoxical relationship is that in poor families secondary earners have to look for a job, while in non-poor families they can afford to be out of the labor force, or have less problems with finding a job (for example, because they are better educated). Thus, in this case causality runs from poverty to unemployment, rather than the other way round.

**Table 1.4 Logit estimate of the odds of being unemployed**

| Dependent variable: unemployed | Odds Ratio |
|---|---|
| Female | 0.901 |
| 25-34 | **0.534** |
| 35-44 | **0.237** |
| 45-54 | **0.288** |
| 55-64 | **0.160** |
| 65 + | **0.044** |
| Secondary general | **0.527** |
| Secondary vocational | **0.439** |
| College | **0.267** |
| University | **0.247** |
| Turkish | 1.278 |
| Gypsy | **3.124** |
| Other | 1.762 |
| Single | **1.629** |
| Spouse | 1.269 |
| Child | 1.422 |
| Others | 2.581 |
| Urban | 0.757 |
| Region dummies | Yes |
| | |
| N | 2877 |
| Log likelihood | -1121.78 |
| Chi2 | 478.34 |
| Pseudo R2 | 0.1757 |

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**Significant at 1 percent level**
Significant at 5 percent level
Significant at 10 percent level
Not significant estimate

**The skills gap**

9. The high share of poorly educated people in unemployment in Bulgaria points to the problem of the skills gap. The comparison of the skill and educational composition of employment with that of unemployment reveals that workers with low skills and educational attainment account for a disproportionate share of unemployment (Table 1.5). For example, workers with only primary education account for over 40% the unemployed and for only 25% of the employed. This indicates an disproportionately large excess supply of low skilled, poorly educated labor.

10. The skills gap turns out to be an important – although not a predominant – cause of unemployment in Bulgaria. Assuming that economic growth will replicate the existing

employment structure[6] (which in the longer run is probably an optimistic scenario, because in reality skilled jobs tend to grow faster than unskilled), and that skill mismatches exist only between skill categories (that is neglecting a possible mismatch within skill categories, which again is an optimistic assumption) it turns out that about 17 percent of the unemployed will not be able to find jobs due to inadequate skills. In other words, one of every six unemployed may not be able to find employment even if there is enough vacancies because the skills/education he or she possesses fall short of skills demanded by employers. Put still differently, the unemployment rate due to the skills gap is 2.6%. These figures provide an lower-bound estimate of the extent of the magnitude of the skills gap because of the best-case scenario. On the positive side, the skills gap has remained at roughly the same level since 1995.

**Table 1.5 Composition of employment and unemployment by educational attainment, 1997**

| Education | Employ-ment | Unemployment | "Excess supply" |
|---|---|---|---|
| University | 15.6 | 5.7 | -9.8 |
| College | 5.9 | 2.6 | -3.3 |
| Secondary vocational | 22.3 | 18.2 | -4.1 |
| Secondary general | 31.7 | 32.5 | 0.8 |
| Primary or less | 24.5 | 40.9 | 16.4 |

Source: Employment and Unemployment, 2/'97, NSI, Sofia

**Job search of the unemployed**

11. On the supply side, the probability of finding a job depends on two factors: (a) job search intensity, and (b) the reservation wage, that is the lowest wage that an unemployed person is willing to accept.

12. **Job search intensity**. The time spent on job search amounts on average to 18 hours per week.[7] However, this average conceals large differences. The median job seeker devotes to the job search only 4 hours. Many of the unemployed (15%) do not actively look for a job at all. A suspiciously large fraction (28%) of jobseekers say they spend on job search 56 hours per week.[8] Insofar as this is indeed the case, the job search is a full-time job: 8 hours per day, 6 days per week.

13. The job search intensity of women is considerably lower than that of men. On average, women devote to job search 5 hours less per week than men. Older workers

[6] This entails the assumption that the wage structure does not change so as to allow low productivity workers to price themselves into jobs.

[7] The sample consists of all persons who report that they are unemployed. It is somewhat larger than the sample of persons who are defined as unemployed by jointly meeting the three following conditions: do not work for remuneration, are available for a job, and look for a job.

[8] This result does not seem plausible; it may spring from a misinterpretation whereby job search is equated with job availability.

spend looking for a job somewhat longer than younger ones. There is no distinct pattern of job search intensity depending on education. For example, the unemployed with primary education spend on job search the same amount of time as university educated workers. Surprisingly, unemployed household heads do not search for a job more intensively than secondary earners: spouses (usually wives), or children.

14. The job search effort does not depend on the duration of unemployment. The long tem unemployed neither increase their job search intensity, nor decrease it. The latter is a positive phenomenon, as it indicates that the long term unemployed do not become increasingly discouraged by the futility of their job search.

15. The receipt of unemployment benefit does not seem to reduce the search effort. Contrary to what is usually assumed, in Bulgaria the recipients of unemployment benefits tend to look for jobs as intensively as those who are not eligible.[9] This means that the disincentive effect usually created by the unemployment benefit system is not very strong in Bulgaria.[10] However, registration at the labor office is not associated with stronger motivation to find a job: unemployed who are not registered at labor offices look for a job as intensively as those who are.

16. The job search effort is related to the search method. Those who look for a job the most actively – visit firms – spend the most time on job search (on average 24 hours per week). Those who confine themselves to visiting labor offices spend on average 8 hours less. In between are those who look for a job through friends (20 hours). Unfortunately, we do not know whether a more active and time intensive job search is more effective than a more passive approach.

17. **Reservation wages**. The unemployed in Bulgaria have excessive wage expectations. Their reservation wages – the lowest wages they are willing to accept – far exceed the wages that employers actually offer. Insofar this is the case, unemployment in Bulgaria is not only a problem of insufficient labor demand and few vacancies, but also a problem of the unemployed not willing to work at the going wage rates. Interestingly, the unemployed have almost perfect knowledge on premia to different labor market skills, however they err when it comes to the "baseline wage", i.e. the intercept of the earnings function.

18. The average differential between the reservation wage and a wage that is predicted based on individual's human capital characteristics is almost 100%. In other words the unemployed tend to claim wages almost twice as high as those they can

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[9] Wadsworth (1989) found similar regularity for the UK. In fact, in UK those claiming benefit search harder than non-claimants. Moreover, benefit claimants were found maintaining a closer attachment to the labor market and more able to prolong search effort.

[10] The disincentive effect of the UB system in Bulgaria is also diminished by relatively stringent eligibility conditions and the low level of benefit. Only about 20% of all unemployed and 29% of the registered unemployed receive unemployment benefits. The benefit level is set at 60% of ones previous wage with a cap of 1.5 times the minimum wage. Given that the minimum wage varies around 30% of the average wage this implies that unemployment benefit does not exceed 45% of the average wage. In practice the replacement ratio is even lower (about 35% of the average wage) since the benefits are not adjusted for inflation. The duration of unemployment benefit varies between 6 and 12 months depending on age and the contribution record.

actually receive. This large disparity between reality and expectations remains even if one allows for possible underreporting of actual wages. This means that wage expectations of the unemployed are totally unrealistic and are likely to effectively prevent them from getting a job.

19. These unrealistic wage expectations are not the result of a misperception of returns to different human capital characteristics. To the contrary, the unemployed seem to be well aware of their relative strengths and weaknesses. In technical terms, the earnings function they implicitly use to "estimate" their reservation wage quite closely matches the actual earnings function as far as the returns to different labor market characteristics are concerned. The problem is that the expected baseline earnings (the constant term) are far too high. These points are documented in Table 1.6. It is indeed amazing to see that the unemployed virtually perfectly "guess" the returns to education. Furthermore, younger workers expect lower earnings than more experienced workers. Women expect lower earnings than men, and Gypsies expect lower earning than Bulgarians with comparable labor market skills. They do take into account local unemployment and relative wage conditions. That is, they have almost perfect recognition of *relative* wages. The only thing that they do not recognize is the actual wage *level*, which they tend to grossly overestimate.

**Table 1.6 Determination of reservation wages and actual wages (OLS estimates)**

| Independent Variables | Dependent variable: log Actual wage | Dependent variable: log Reservation wage | Difference (*100) | Significance 1) |
|---|---|---|---|---|
| Education, years | 0.062 | 0.059 | 0.388 | no |
| Age | 0.019 | 0.049 | -3.061 | yes |
| Age$^2$/100 | -0.022 | -0.054 | 3.236 | no |
| Female | -0.273 | -0.335 | 6.185 | no |
| Turkish | 0.081 | 0.007 | 7.361 | no |
| Gypsy | -0.344 | -0.320 | -2.443 | no |
| Other ethnicity | -0.167 | -0.175 | 0.821 | no |
| Reg. Unemployment | -0.011 | -0.001 | -1.029 | yes |
| Reg. Wage | 0.003 | 0.004 | -0.043 | no |
| Constant | 10.755 | 9.493 | 126.227 | yes |

1) Significance of the difference between coefficients at the 5 percent significance level.
Source: IHS 1997.

20. Excessive wage expectations are characteristic of all worker groups. However some groups are more unrealistic in their expectations than other. These are women, younger workers, and workers with college or university education. Symptomatically, except for college/university educated workers, these are groups among which unemployment is higher than the average.

21. The longer duration of unemployment hardly moderates wage expectations. Only the unemployed for more than two years significantly scale down their reservation wages, but still they bargain for wages substantially (60%) higher than those prevailing on the market. It is usually assumed that job search is adaptive, that is that reservation wages fall in the course of search. There is little evidence of this in Bulgaria, which is worrisome, as this lack of adjustment by itself prolongs job search.

22. Higher intensity of job search tends to moderate wage expectations, but the relationship is weak. The unemployed who spend on the job search less than an hour per week tend to expect wages more than twice as high as those prevailing on the market. Those who look for 8 hours or more are ready to accept wages "only" 75% higher than the actual ones.

23. The unemployed who use less active methods of job search, such as reading ads in newspapers or through friends tend to have higher wage expectations than those who use more active methods and are exposed to the reality of the labor market. For example, those who confine themselves with reading ads in newspapers expect wages 120% higher than they actually count on. Those who visit firms want wages 80% higher; whereas the clients of labor offices are the most modest in their wage claims and want wages that are "only" 70% higher than those actually offered.

24. Unemployed registered with labor offices have lower reservation wages than those who are not, although they still want wages that are higher than the actual ones. One possible explanation is that persons who are exposed to actual job offers tend to moderate their wage claims. Another possibility is, that this result merely reflects self-selection process, whereby it is less active and energetic persons who register with labor offices and who *a priori* have lower wage expectations.

25. The job search theory suggests that the recipients of unemployment benefits are likely to have higher reservation wages than non-recipients. The data for Bulgaria do not support this hypothesis. The unemployed registered at labor offices have the same reservation wages irrespective of whether or not they receive unemployment benefits. This is yet another piece of evidence suggesting that the unemployment benefit system in Bulgaria does not seem to have a distortionary impact on the effectiveness of the job search of the unemployed.

26. To conclude, reservation wages of the unemployed are much higher than the wages they can actually receive, given their human capital and labor market conditions. These excessive wage expectations are likely to prevent many unemployed from obtaining a job, prolong the job search duration, and thus contribute to unemployment in Bulgaria.

## Conclusions

27. Since the outset of the transition the labor market in Bulgaria has been stagnant and offers limited employment opportunities. Labor force participation has been low and

unemployment has been relatively high. Although the unemployment rate has recently declined, a marked increase in unemployment is likely to take place one the currently stalled restructuring process starts to accelerate.

28. The turnover of the unemployment pool is low. An unemployment person has low chances of finding a job. As a result many unemployed become discouraged and withdraw from the labor force. On average job search duration is long and thus the incidence of long term unemployment is high. This is a worrisome feature of the Bulgarian labor market as the long term unemployed face increasingly lower chances of finding a job due to erosion of their skills. As a result, high unemployment is likely to persists even when the economic growth resumes.

29. The unemployment problem in Bulgaria is accentuated by the skills gap. Many unemployed will not be able to find a job even if there is enough vacancies because their skills fall short of those required by employers.

30. Young, low educated persons, especially of Gypsy origin, face the highest risk of unemployment. The link between low educational attainment and unemployment is particularly strong. Thus, acquiring more education provides the best protection against unemployment. Secondary earners are more often unemployed than primary earners. However, often secondary earners are looking for a job because they come from poor families.

31. Many of the unemployed in Bulgaria do not look intensively for a job and confine themselves to visiting labor offices. At the same time, they have excessive wage expectations, that is their reservation wages are much higher than what they can bargain for. These unrealistic expectations may contribute to the unemployment problem to the extent the unemployed are not willing to accept job offering wages lower than what they expect.

# II. WAGE DEVELOPMENTS

### Trends in real wages

32. According to official statistics, real wages have fallen dramatically since the outset of the transition (Table 2.1). Since 1995 real wages have further decreased by about 30%. As a result, average wage in 1997 was less than two-thirds of that in 1991, and less than 40% of its pre-transition value.

**Table 2.1 Dynamics of real wages, 1990-1997**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|
| Real wage index | | | | | | | | |
| PY=100 | - | 60.6 | 119.0 | 101.1 | 82.1 | 94.5 | 82.4 | 83.3 |
| 1990=100 | 100.0 | 60.6 | 72.1 | 73.0 | 59.9 | 56.6 | 46.6 | 38.9 |
| 1991=100 | 165.0 | 100.0 | 119.0 | 120.4 | 98.8 | 93.3 | 76.9 | 64.1 |

Source: National Statistical Institute, Bank staff calculations.

33. The degree of the wage fall seems to be overestimated, largely as a result of problems with correct price measurement under the conditions of widespread shortages in the consumer goods market, which were prevalent under central planning and during the early phase of the transition in Bulgaria. A price of a good has little meaning if at this price the good is hardly available. In particular the CPI might have been systematically overestimated, if the base year prices were below the equilibrium level.

34. In order to check the hypothesis that the fall in real wages is overestimated, we constructed a weekly basket of basic foods[11] and calculated the number of baskets one can buy for an average monthly wage in different years. It turned out that the there have been no substantial changes during the period 1991-1997. By way of illustration, a person earning average wage was able to buy 7.4 baskets in 1991, 8.8 in 1995 and 7.8 in 1997.

35. Of course, this is a simplistic exercise, as it covers a very limited number of consumer goods, and uses arbitrary weights.[12] Nonetheless, it casts some doubt on the claim that the purchasing power of wages has shrunk dramatically during the transition. With a reasonable degree of confidence one can claim, that the purchasing power of wages in terms of subsistence food has not fallen dramatically – a finding of direct relevance for poverty analysis.

[11] The basket included bread, milk, meat, cheese, eggs, oil, butter, potatoes, and pasta.

[12] That is, we assumed how much of each good is consumed during the week.

**Changes in the wage distribution**

36. The last two years have witnessed a dramatic rise in earnings inequality (Table 2.2). The Gini coefficient – a summary measure of inequality – has sharply increased by 12 Gini points, reaching the level of 40. By West European standards this indicates a very high level of inequality. Similar values of the Gini coefficient are observed in developing and in some of FSU countries. By contrast, the Gini coefficient for transition economies of Central Europe varies around 30, and ranges from 25 to 30 in West European OECD countries (Rutkowski, 1996).

**Table 2.2 Summary of earnings distribution, 1995 and 1997**

| | 1995 | 1997 | | |
|---|---|---|---|---|
| | National economy | National economy | Public sector | Private sector |
| Gini coefficient (*100) | 28.1 | 40.0 | 39.3 | 41.5 |
| P10 | 57.7 | 44.6 | 43.8 | 44.1 |
| P90 | 192.3 | 245.5 | 250.0 | 213.1 |
| Decile ratio | 3.3 | 5.5 | 5.7 | 4.8 |
| Incidence of | | | | |
| Low pay | 17.8 | 24.7 | 22.1 | 33.3 |
| High pay | 14.0 | 15.1 | 16.9 | 9.2 |

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Notes:
P10 denotes the earnings of the bottom decile relative to the median, expressed as a percentage.
The decile ratio is the ratio of earnings at the top decile to earnings at the bottom decile, i.e. P90/P10.
Low pay is defined as earning lower than 2/3 times the median.
High pay is defined as earnings higher than 2 times the median.

Source: Integrated Household Survey, 1995 and 1997; World Bank staff calculations.

37. The wage distribution has widened at both ends. Low paid workers have seen their relative wage status substantially deteriorate. In 1995 a worker at the bottom decile earned 58% of the median wage, while now he earns only 45% of the median (the P10 ratio). The wage gap between the bottom decile workers and the median worker is in Bulgaria much larger than in most European countries, including transition economies. For example, in Poland (which is a medium to high wage inequality OECD country) the wage of the bottom decile worker accounts for 57% of the median.

38. Simultaneously, the relative earnings position of top paid workers has considerably improved. Now a worker at the top decile earns a salary that is 2.5 times higher than that of the median worker (the P90 ratio). The relative earnings position of top paid workers in Bulgaria is better than in most European countries. For example, in Poland a top paid worker earns twice as much as the median worker.

39. The ranks of low paid workers have swollen. The incidence of low pay has increased by 7 percentage points from 1995 to 1997 and at present one in four workers is low paid. This is a huge increase to a very high level. In OECD countries the percentage of low paid worker does not exceed 20% even in high wage inequality countries. In Poland the proportion of low paid workers amounts to 18%. In contrast, the proportion of top paid workers has increased only slightly, by 1 percentage point, reaching 15%.

40. The incidence of low pay is substantially higher in the private sector than in the public sector. In the private sector one-third of all jobs are low paid, compared with just over one-fifth in the public sector. Quite surprisingly, it is the public sector that is the primary source of good jobs. In the public sector 17% of workers earn more than two times the median earnings (for the national economy), while in the private sector only 9%. Thus, in Bulgaria, unlike advanced transition economies, the public sector still offers better jobs than the private.

41. Such a rampant increase in earnings inequality is quite unusual, even by standards of transition economies. A possible cause is the runaway inflation of 1997. In some firms workers were able to maintain the real value of their earnings, while in others they were not. Moreover, under high inflation monthly real earnings are extremely volatile: they go down in the wake of the price shock, then go up as workers strive to recoup the purchasing power of their wages, and this cycle is likely to repeat. In effect, earnings dispersion at a given moment is always higher than the dispersion of earnings averaged over a longer period of time, say, one year. If indeed the increase in wage dispersion was an outgrowth of inflation, then it might be the case the high level of earning inequality was a transitory phenomenon characteristic of 1997.

42. Is high wage dispersion good or bad? It depends. If a more flexible wage structure leads to the creation of more jobs, then the net effect on poverty may be well positive. If, however, the widening of the wage distribution does not bring about employment growth, then the impact on poverty is unambiguously negative. Given that the employment rate has remained roughly stable during 1995-1997, widening of the wage distribution has not been coupled with growth in employment. One cannot rule out the possibility that unemployment would increase if the wage distribution not widened, but this hypothesis does not seem very plausible. If so, then the increase in earning dispersion, associated with the sharp increase in the incidence of low pay, has most likely contributed to the growing poverty.

43.

**Wage determination and relative wages**

44. This section examines the role of different factors in wage determination. In particular, it looks at returns to labor market skills, the wage effects of unionism, and the impact of regional unemployment. These factors determine relative wages, in other words they determine who is well paid and who is low paid. The analysis is largely based on the results of the estimation of a set of earnings functions, which are presented in Table 2.3.

**Table 2.3 OLS estimates of earnings functions**

| Dependent variable: log monthly earnings | | | |
|---|---|---|---|
| | National economy | Public sector | Private sector |
| *Education (Primary)* | | | |
| Secondary general | **0.227** | **0.267** | 0.064 |
| Secondary vocational | **0.304** | **0.344** | 0.083 |
| College | **0.397** | **0.474** | 0.145 |
| University | **0.691** | **0.741** | **0.444** |
| Job experience | 0.014 | 0.013 | 0.028 |
| Job experience2 | -0.028 | -0.022 | -0.081 |
| Female | **-0.253** | **-0.261** | **-0.222** |
| *Ethnicity (Bulgarian)* | | | |
| Turkish | 0.014 | -0.066 | 0.281 |
| Gypsy | -0.232 | -0.199 | -0.114 |
| Other ethnicity | 0.067 | 0.101 | (dropped) |
| Trade union | 0.087 | 0.109 | 0.016 |
| Private sector | -0.085 | - | - |
| *Industry (Manufacturing)* | | Yes | Yes |
| Construction | **-0.166** | | |
| Agriculture | **-0.637** | | |
| Transport | **-0.159** | | |
| Trade | **-0.385** | | |
| Social services | **-0.524** | | |
| Public services | **-0.197** | | |
| Region dummies | Yes | Yes | Yes |
| N | 1102 | 839 | 263 |
| F | 15.29 | 14.22 | 3.09 |
| $R^2$ | 0.270 | 0.304 | 0.237 |
| Root MSE | .5805 | .5644 | .6112 |

**Significant at 1 percent level**
Significant at 5 percent level
Significant at 10 percent level
Not significant estimate

Note: The hypothesis that earnings functions are identical in the public and the private sectors is rejected at the 1 percent significance level (using standard F-test)

45. **The role of human capital**. High skills pay off in Bulgaria. The trend of the increasing returns to education, incipient in the early phase of the transition, continues, and presently educational premia are higher than they were two years ago (in 1995). For example, all else equal, a worker with secondary general education earns on average 25% more than a worker with primary education, a premium 10 percentage points higher than

it was in 1995.[13] The premium to secondary vocational education has increased to similar degree. However, the premium to university education has increased most dramatically, by 20 percentage points, and now a worker with an university degree earns twice as much as a worker with primary education. Educational premia in Bulgaria have come to resemble those in advanced transition economies, such as the Czech Republic, Hungary and Poland, as well as those prevailing in Western Europe.

46. The pattern of relative wages observed in Bulgaria is untypical in that educational premia are substantially higher in the public than in the private sector. After all, the private sector offers virtually no premia to secondary education and even to college education. It does value university education but to a lower degree than the public sector (55% premium over primary education, compared with 110% in the public sector). This is unusual, as in advanced transition economies of CEE as a rule it is the private sector which drives the changes in relative wages, and in particular offers significantly higher returns to education. The private sector in Bulgaria seems to be less skill intensive than the public sector (even after controlling for industry composition), and thus demand less highly qualified labor. This implies that a truly modern, skill and capital intensive private sector, which can be an engine of growth, is yet to develop in Bulgaria.

47. All else equal, the average wage in the private sector is lower than in the public sector by 9%.[14] The private/public wage differential varies by educational attainment (Table 2.4). All worker groups lose on private sector employment, regardless of their educational attainment, but those who lose the most are workers with secondary education (either general, or vocational, although the latter group loses more). Earnings of workers with primary education and university education are in the private sector only slightly lower than in the public sector. This pattern of no gains on private sector employment implies that no group of workers has a clear (short-term) interest in the privatization of the economy.

[13] The relative change in wage resulting from an unit change in variable x is calculated as exp(b)-1, where b is an estimated regression coefficient of x . For "small" b, say b<0.2, the relative change in wage = b.

[14] This result rests on the assumption that private sector workers do not have a greater incentive to underreport earnings than public sector workers.

**Table 2.4 Private/public wage differential by educational attainment**

| Education | Private/public wage differential, % |
|---|---|
| Primary | -4.0 |
| Secondary general | -16.5 |
| Secondary vocational | -25.2 |
| College | -7.8 |
| University | -2.2 |
| All levels | -15.2 |

Source: IHS 1997, Bank staff calculations.

48. The pattern prevailing in Bulgaria differs considerably from that occurring in advanced transition economies. For example, in Poland only workers with low or narrow skills lose on private sector employment, whereas workers with secondary and tertiary education gain. Moreover, the gain is the greater the higher the educational attainment. That is, workers with university degree are much better off in the private sector than in the public sector, and they gain substantially more than workers with secondary education (Rutkowski, forthcoming). In contrast to Bulgaria, the private sector in Poland is exhibits high demand for highly skilled labor. This again supports the view that the private sector in Bulgaria has developed largely on the low-skill margin of the economy.

49. The returns to tenure with the current firm are low in Bulgaria. Thus, wages of younger workers, with short tenure, are not much higher than those of older workers. The fall in returns to experience is characteristic of most transition economies and reflects the fact that experience gained under the old regime is now of lesser value. In a way, this is a positive phenomenon, as it reduces the loss associated with changing a job, and thus it is conducive to industrial restructuring. Interestingly, returns to experience with the current employer are higher in the private sector than in the public sector. However, workers employed in the private sector – which has developed just recently in Bulgaria – have much shorter tenure than those in the public sector.[15]

50. **The role trade unions**. Wages of workers employed in firms where trade unions are present are significantly higher than in non-union firms (by 9%). Similarly, members of trade unions receive wages significantly higher than non-members with comparable human capital characteristics.[16]

[15] The median worker's tenure with the current employer is 12 years in the public sector and 3 years in the private sector.

[16] Result based on estimating earnings function with "union member" (rather than "union present") as an explanatory variable (not reported in detail here).

51. Trade unions in Bulgaria operate mainly in public firms, while their presence in private firms in negligible.[17] Correspondingly, the union wage effect is visible only in the public sector. This partly accounts for wages in the public sector on average higher than in the private sector. The strong presence of unions in the public sector also contributes to lower wage inequalities, as unions tend to exert egalitarian pressure.

52. **Role of gender and ethnicity**. Women earn on average 28% less than men with similar human capital characteristics. This means that women have begun to close the salary gap with men, a two years ago the male/female wage differential in Bulgaria exceeded 30 percent. Another positive development is that the relative wage position of women in the private sector has improved in the last two years. Currently, the female/male salary differential in the private sector is similar (in fact slightly smaller) as in the public sector. In 1995 wage discrimination of women was much more pronounced in the private sector than in the public sector.

53. Gypsies earn over 20% less than Bulgarians with similar observable characteristics. In this respect there is no change over the situation observed two years ago.[18]

54. **The role of regional unemployment rate**. In Bulgaria regional unemployment does not have a significant moderating impact on wages. In other words, one is not able to discern the existence of the so called "wage curve", whereby "a worker who is employed in an area of high unemployment earns less than an identical individual who works in a region with low joblessness" (Blanchflower and Oswald, 1994, p.5). This is an important result which implies that in Bulgaria an equilibrating mechanism of higher joblessness causing lower wages in not in place. In other words, local wages do not seem to adjust to local unemployment and this rigidity leads to the persistence of unemployment. This is in contrast to majority industrial countries, where the unemployment elasticity of pay is around –0.1, i.e. a hypothetical doubling of unemployment is associated with a drop in pay of 10% (Blanchflower and Oswald, 1994). The fact that local unemployment does not play a significant role in pay determination benefits the insiders – those who have a job – however at a considerable social cost of higher unemployment.

55. **Industrial pattern of low pay**. Agriculture is by far the lowest paying industry, even after controlling for workers' human capital characteristics. All else equal, wages in agriculture are 90% lower than in manufacturing. Low paying industries also include social services (education, health care, social welfare), where wages are on average 70% lower than in manufacturing, and trade where wages are 50% lower. Low salaries in social services are characteristic of historically planned economies in general, but in Bulgaria the gap seems particularly pronounced. Given that social services are mainly publicly financed, low salaries there reflect fiscal crisis faced by Bulgaria.

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[17] In the public sector, 72% of workers work in unionized firms, while in the private sector the pertinent figure is only 13%. Similarly, 42% of workers in the public sector are union members, while only 6% are in the private sector.

[18] The estimate of Gypsy/Bulgarian wage gap for 1997 is not significant, probably due to a small sample size. However, the almost identical estimate for 1995 was highly significant.

56. Altogether, the low paying industries account for 38% of total employment. However, as many as 46% of the working poor have jobs in these industries, which suggests that industry affiliation can be a separate risk factor conducive of poverty.

57. **Sources of earnings inequality**. The higher earnings inequality the higher the incidence of low pay. Which factors are of primary importance in causing wage dispersion? An answer to this question is provided in Table 2.5. Inter-industry wage differentials (industry rents) prove to be the most important factor accounting for wage inequality. They explain almost 10% of total variance in earnings and 36% of the explained variance. An important part is played by differences in educational attainment. They explain 8.2% of total variance in earnings and 31.4% of the explained variance. Interestingly, the effect of education comes entirely from university education. The gender wage gap contributes almost 5% to total earnings inequality and close to one fifth to the explained inequality. Other factors – experience, sectoral and regional affiliation – are of secondary importance.

**Table 2.5 Contribution of selected variables to log-earnings inequality.**

| Variable | In % of: | |
|---|---|---|
| | Total variance | Explained variance |
| Education | 8.2 | 31.4 |
| of which Tertiary | 8.1 | 31.1 |
| Job experience | 0.7 | 2.7 |
| Gender | 4.6 | 17.5 |
| Private/public sector | 1.3 | 5.0 |
| Industry | 9.5 | 36.3 |
| Region | 2.0 | 7.7 |
| Total explained ($R^2$) | 26.2 | |
| Unexplained | 73.8 | |
| Total | 100.0 | |

Note: The contribution of an variable x to the variance of the log-earnings w was calculated as $b*r(w, x)$, where b is the standardized regression coefficient in the earnings function, and $r$ is the correlation coefficient
The contribution of a categorical variable (e.g. education) is measured as a sum of Contributions by binary regressors representing each category (e.g. primary education, Secondary education). The contribution of a single binary regressor (e.g. tertiary education) can be greater than the contribution of the categorical variable as a whole (e.g. education) if the contribution of some other binary regressors (e.g. primary education) is negative.

Source: Integrated Household Survey 1997; World Bank staff calculations.

58. The predominant role played by industry rents in generating wage dispersion is peculiar to Bulgaria. As a rule, it is differences in educational attainment which contribute most to wage dispersion. Large inter-industry wage differentials, which are not accounted for by differences in the skill composition of employment, point to the

uncompetitve nature of wage determination in Bulgaria. Highly skilled persons who are stuck in low paid government jobs are part of the problem. However, the persistence of industry rents also indicates low inter-industry labor mobility and slow pace of industrial restructuring. Large inter-industry wage differentials are an likely outgrowth of loss making and subsidized public firms paying their workers wages above the competitive level. For example, public firms in manufacturing pay wages on average 25% higher than private firms.

59. The existence of substantial industry rents distorts and reduces the incentives created by educational premia, as one's earnings to a greater degree depend on industry of employment than on educational attainment. In particular, many workers are low paid not because of their failure to acquire skills, but because they are ratcheted in a "wrong" industry.

60. All in all, using a standard set of explanatory variables, including human capital factors, one is able to explain slightly over one-fourth of the total variance in earnings in Bulgaria. We are doing somewhat better at explaining earning variation in the public than in the private sector (30% of total variance against 24%, respectively). These are standard results; however one needs to bear in mind that our ability to account for wage dispersion is limited. A lot or room is left for unobservable, individual and firm specific factors.

61. **Profile of low pay.** Low paid workers are first of all persons employed in low-paying industries, such as agriculture, trade, and – peculiar to Bulgaria – social services. Another important factor conducive to low pay is low educational attainment. Women are more likely to be low paid than men. Workers employed in the private sector are more often low paid than their public sector counterparts. By contrast, young age and lack of labor market experience are not necessarily associated with low wages. Also, workers in regions with high unemployment are not more likely to be low paid than their counterparts in low unemployment regions.

**Conclusions on wage developments**

62. Real wages in Bulgaria have been falling since the outset of transition. Only in the last two years they decreased by about 30%. However, the actual fall in real wages is probably overestimated. A person earning the average wage could, roughly speaking, buy the same basket of basic foods in 1997 as in 1991.

63. Since 1995 wage inequalities have dramatically increased, and are extremely high by European standards. In practical terms this means that the number of low paid workers is much higher and their relative earning position is worse than it used to be. The incidence of low pay is presently very high in Bulgaria. However, the increase in the number of low paid jobs does not entail a net increase in the number of available jobs. Low paid jobs are not additional jobs but rather middle paying jobs turned low paying jobs.

64. Low pay is mainly associated with low educational attainment, but also with working in a low paying industry, such as agriculture, trade and – peculiar to Bulgaria – social services. Women earn significantly less than men with similar qualifications.

65. Low paid jobs are located largely in the private sector. More generally, private sector jobs are less attractive than public sector jobs. In particular, the private sector offers substantially lower educational premia, which is peculiar to Bulgaria, as in other transition economies well educated workers are better of in the private sector than in the public sector.

# III. LABOR MARKETS AND POVERTY

## Labor market characteristics of the poor[19]

66. The poor are less frequently employed than the non-poor and more frequently unemployed, or out of the labor force (Table 3.1). Only one-third of the working age poor are employed, compared with almost one-half of the non-poor. The unemployed account for 16% of the poor and only 8% of the non-poor. Put differently, the unemployment rate among the poor is over twice as high as among the non-poor: 33% and 15%, respectively. Thus, the poor are less economically active and less successful in finding a job than the non-poor. Simultaneously, non-employment leads to poverty.

67. Poverty is often associated with unemployment. Over one-third of all poor comes from families stricken by unemployment, that is from families where at least one member is unemployed. Obviously, unemployment is only one causes of poverty. Many families are poor because of economic inactivity (e.g. due to old age or disability), or low earnings.

68. Work does not prevent families from poverty: the "working poor"[20] account for 34% of all poor. Not surprisingly, the earning capacity of the poor is considerably weaker than that of the non-poor. As much as 35% of the poor are low-paid,[21] compared with 23% of the non-poor. However, many of the poor (55%) have middle paying jobs, and some of them even well paying jobs (10%) – which means that in some cases even relatively high wages do not protect from poverty.

69. The poor are disproportionately often employed in agriculture and – quite surprisingly – in social services, such as health care and education. One out of ten poor persons has a job in agriculture, against one out of twenty of the non-poor. Many of the poor work in manufacturing (21%), but their share of manufacturing jobs is lower than that of the non-poor (27%).

70. While poverty is associated with agricultural employment in many countries (as a result of low-productivity of agricultural jobs), the association between poverty and social services employment is uncommon, since these sectors tend to be skill intensive. However, social service jobs have been traditionally low paid in virtually all historically planned economies, and Bulgaria is not an exception. Nonetheless, the disproportionate employment of the poor in social sectors in Bulgaria is a peculiarity that is worth highlighting.

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[19] The poor are defined here as persons in the bottom quintile of per capita expenditure. The sample is limited to persons aged 15 or more, that is to persons who can participate in the labor force.

[20] Working poor are poor families where at least one person has a job.

[21] A workers is low paid if his earnings are lower than two-thirds of the median.

**Table 3.1 Labor market characteristics of the poor**

| | Non-poor | Poor | All |
|---|---|---|---|
| | *In percent* | | |
| TOTAL | 100.0 | 100.0 | 100.0 |
| **Labor force status** | | | |
| Employed | 44.7 | 32.4 | 42.4 |
| Unemployed | 7.9 | 15.9 | 9.4 |
| Out of the labor force | 47.4 | 51.8 | 48.3 |
| **Earnings category** | | | |
| Low | 23.2 | 35.0 | 24.7 |
| Middle | 47.6 | 55.0 | 48.5 |
| High | 29.3 | 10.1 | 26.8 |
| **Sector of employment** | | | |
| Public | 76.6 | 71.0 | 75.9 |
| Private | 23.4 | 29.0 | 24.1 |
| **Industry of employment** | | | |
| Manufacturing | 26.6 | 20.8 | 25.8 |
| Construction | 11.4 | 11.9 | 11.5 |
| Agriculture | 4.9 | 10.2 | 5.6 |
| Transport & communication | 9.9 | 7.6 | 9.6 |
| Trade | 13.1 | 14.4 | 13.3 |
| Social services | 18.5 | 21.6 | 18.9 |
| Public administration | 15.7 | 13.6 | 15.4 |

Note: Population of working age (15 years or more).
Source: IHS 1997

71. The poor more often than the non-poor are employed in the private sector, however this largely reflects the fact that agriculture, which is an industry of employment for many poor, is predominantly private.

## Households' labor market performance and poverty

72. Household's labor market performance is determined by two variables: the number of family (household) members who are employed, and their earnings. Two questions arise. First, what is the impact of both variables on the poverty status? Second, what is the relationship between both variables: do households with low earnings capacity tend to increase labor supply, or to the contrary, low earnings go hand in hand with low labor supply?

73. **How strong is the impact of an increase in the number of earners on the incidence of poverty?** Persons from households with two earners face a risk of poverty 4.8 points, or 28% lower than persons from households with only one earner (Table 3.2). This is a significant reduction, however it is considerably smaller than in most

countries.[22] Moreover, the poverty incidence among families with two earners is still quite high (12.6%), much larger than in other countries, where it is usually negligible. For example, in Macedonia the differences in the incidence of poverty between one-earner families and two-earners families is 15.3 points, or 82%, and the poverty incidence among two-earner families is very low (3.3%). Thus, Bulgaria does not conform to the pattern observed in many countries whereby "double earnship – both partners earning a wage – appears to be an almost watertight guarantee against poverty," (Marx and Verbist, 1997).

**Table 3.2 Poverty incidence by the number of earners in a household**

| Household employment rate | % of persons 1) | Poverty incidence |
|---|---|---|
| Zero | 53.7 | 24.4 |
| One-third or less | 20.3 | 17.4 |
| More than one-third | 26.0 | 12.6 |
| All households | 100.0 | 19.9 |

**Notes:**

Household employment rate is the number of earners in the household per one household member.

If the household employment rate is zero, this means that there are no earners in a household, if it is one-third, this means that there is one earners per three household members. For example, the household employment rate is equal one-third in a family with a working husband, non-working wife and a child. It will be one-fourth, in a family with a working husband, non working wife and two children. It will be two-fifths in a family with two working parents and three children. As long as there are two earners and the number of dependants does not exceed three, the household employment rate will be higher than one-third. For practical purposes, the employment rate of one-third implies one earner in the household, and the employment rate of more than one-third implies two earners.

1) Persons in households with given employment rate.

Source: IHS 1997

74. **How sensitive is poverty to changes in household wages?** The incidence of poverty among households having middle earnings is 6.5 points, or 28% lower than among households having low earnings (Table 3.3). Clearly, higher earnings reduce the risk of poverty, but the reduction is moderate. For example, in Macedonia households with middle earnings face the risk of poverty 8 points, or 41% lower than households with low earnings.

**Table 3.3 The incidence of poverty by mean household earnings**

| Mean household earnings | % of persons 1) | Poverty incidence |
|---|---|---|
| Low | 23.5 | 23.0 |
| Middle | 50.7 | 16.5 |
| High | 25.7 | 3.6 |
| All households 2) | 100.0 | 14.7 |

**Notes:**

Mean household earnings ("earning capacity") are total household earnings divided by the number of earners.

Low earning capacity = mean household earnings lower or equal to 2/3 of the median.

[22] Data for OECD countries are provided in (Marx and Verbist, 1997), data for Macedonia in (Rutkowski 1998).

Middle earning capacity = mean household earnings higher than to 2/3 of the median but lower of equal to 1.5 of the median.

High earning capacity = mean household earnings higher than 1.5 of the median.

1) Persons in households which are in a given earnings category.

2) With at least one earner.

Source: IHS 1997

75. The above results give rise to two questions: (i) why two earners do not protect a family from poverty, and (ii) why higher wages bring about only a moderate fall in the risk of poverty? There are three possible answers:

(a) Low share of wage income in total income and/or negative correlation between wage and non-wage income;

(b) Low variability of the number of earners and/or household wages (e.g. if all households had two earners, this would not be a factor protecting from relative poverty);

(c) Negative correlation between the number of earners and household wages (e.g. low earning power is compensated for by a higher number of earners in the household);

76. The first factor – low share of wage income – is likely to play a key role in mitigating the impact of households' labor market position on their poverty status. A relatively low poverty rate among households without earners illustrates this point. More rigorously this can be proven by showing that the two other factors are of no importance.

77. The second factor – low variation in household employment and wages – does not offer a satisfactory answer since the variation is not abnormally low in Bulgaria. In fact, as documented earlier, the wage dispersion tends to be higher than in other countries.

78. The third factor – the correlation between household employment and wages – is actually positive, not negative, and thus both variables reinforce their impact on poverty. If the role of this factor was not offset by the low share of wage income, poverty in Bulgaria would be very sensitive to households' labor market performance.

79. The positive correlation between household earning capacity and the number of earners has important poverty implications and thus deserves further investigation. Table 3.4 illustrates the pattern whereby households with low earning capacity tend to have less earners than households with high earning capacity. As much as 66% of high wage households have two earners in contrast with 55% of low wage households. Low earnings and low labor supply tend to go hand in hand. This implies that income inequality and thus poverty are higher than if earning capacity and employment rate were negatively correlated.

**Table 3.4 The relationship between household earnings and employment**

| Mean household earnings | Household employment rate | | |
|---|---|---|---|
| | Less or equal to 1/3 | Higher than 1/3 | All households |
| Low | 46.6 | 53.4 | 100.0 |
| Middle | 37.2 | 62.8 | 100.0 |
| High | 34.0 | 66.0 | 100.0 |
| All households | 38.5 | 61.5 | 100.0 |

Source: IHS 1997

80. Poverty is often a result of both low earning capacity and low household employment rate. This point is summarized in Table 3.5., which shows that the higher the earnings of the household head, the higher the earnings contributed by other family members. If a family head is in the top wage quintile, other family members contribute on average four times more than in families where the head is unemployed and three times more than in families where the head is in the bottom wage quintile. Poverty tends to be a result of the inability of the whole family to find productive, well paying jobs. Conversely, affluence tends to be a result of all family members joining forces to earn a decent living. In poor households few people have jobs and the jobs tend to be low paid. In well-to-do households more people have jobs and the jobs tend to be well paying.

81. This general pattern is virtually unchanged if one looks only at employed family members. If a household head is low paid, other family members are low paid, too. Only if the household head is unemployed, secondary earners try to make up for the loss of income and earn somewhat higher wages. Otherwise, their earnings "mirror" that of the household head.

82. **What is the relative importance of wages and employment in determining household's wage income and poverty?** In Bulgaria, household wage is a better predictor of poverty than the number of earners.[23] Moreover, the number of earners plays a minor role in determining variation in household wage income, compared with that played by average household wage. This is in contrast with Macedonia where the relative role of the number of earners in a household is much more important (Table 3.6). An interesting difference between two countries is that while in Bulgaria household wages and employment are positively correlated, they are virtually uncorrelated in Macedonia. This contributes to greater wage income dispersion in Bulgaria relative to Macedonia.

[23] The association between household employment rate and poverty status is –0.286, and the association between household earning capacity and poverty status is –0.466, as measured by Goodman and Kruskal's gamma coefficient (which ranges from –1 to 1).

**Table 3.5 Average earnings of secondary earners by wage category of the household head.**

| Household head earnings | Average earnings of secondary earners (Leva '000) | |
|---|---|---|
| | All household members of working age | Employed household members |
| Zero earnings (unemployed) | 25 | 104 |
| First quintile | 33 | 70 |
| Second quintile | 41 | 86 |
| Third quintile | 58 | 107 |
| Fourth quintile | 62 | 116 |
| Fifth quintile | 98 | 171 |

Note: Non-employed household members of working age (15 years of age or more) are attributed zero earnings. This implies that the variable under consideration is average earnings of actual and *potential* secondary earners.

Source: IHS 1997.

**Table 3.6 The determination of wage income in Bulgaria and Macedonia.**

| | **Bulgaria** | **Macedonia** |
|---|---|---|
| *Squared correlation coefficients for log wage income per capita (%)* | | |
| Log average household wage | 66.9 | 53.9 |
| Log employment rate | 41.6 | 45.3 |
| *Decomposition of variance in log wage income per capita (% of total variance)* | | |
| Variance in log average wage | 58.8 | 54.7 |
| Variance in log employment rate | 33.4 | 46.1 |
| Covariance *2 | 7.8 | -0.8 |
| Total variance in log wage income per capita | 100.0 | 100.0 |

Source: IHS 1997, Rutkowski (1998)

**Unemployment, low pay, and poverty**

83. **Local labor market conditions** prove to be a significant determinant of poverty in Bulgaria (Table 3.7). Holding family socio-demographic characteristics constant, a 1percentage point increase in regional[24] unemployment rate leads to 0.6 percentage point increase in the incidence of poverty. Put differently, a 10% increase in the regional unemployment rate brings about a 1.1 percentage points increase in the poverty rate. Regional wage conditions impact poverty, too. A 10% increase in the average wage in the region would cause a 2.1 percentage points fall in the incidence of poverty.[25]

**Table 3.7 Probit estimates of the impact of local labor market conditions on poverty**

Probit Estimates — Number of obs = 6656; chi2(15) = 959.57; Prob > chi2 = 0.0000; Log Likelihood = -2854.7715; Pseudo R2 = 0.1439

| botm20 | dF/dx | Std. Err. | z | P>\|z\| | x-bar | [ 95% C.I. ] | |
|---|---|---|---|---|---|---|---|
| Reg urate | .0063058 | .0010191 | 6.18 | 0.000 | 18.115 | .004308 | .008303 |
| Reg wage | -.0015045 | .0002285 | -6.54 | 0.000 | 143.866 | -.001952 | -.001057 |
| Male* | -.0410799 | .0150495 | -2.85 | 0.004 | .855018 | -.070577 | -.011583 |
| Age39* | -.0548115 | .0253077 | -1.99 | 0.047 | .136719 | -.104414 | -.005209 |
| Age49* | -.0341393 | .0267072 | -1.24 | 0.215 | .267278 | -.086484 | .018206 |
| Age99* | -.0072817 | .0280872 | -0.26 | 0.795 | .5628 | -.062332 | .047768 |
| SecGen* | -.0473816 | .0145552 | -3.01 | 0.003 | .116887 | -.075909 | -.018854 |
| SecVoc* | -.0973557 | .0116409 | -7.51 | 0.000 | .261268 | -.120171 | -.07454 |
| College* | -.0232561 | .0201416 | -1.11 | 0.268 | .059645 | -.062733 | .016221 |
| Univ* | -.1193764 | .0127486 | -6.90 | 0.000 | .095403 | -.144363 | -.09439 |
| Turkish* | .0628786 | .0198087 | 3.41 | 0.001 | .090895 | .024054 | .101703 |
| Gypsy* | .4509685 | .0309826 | 15.55 | 0.000 | .063101 | .390244 | .511693 |
| Other* | .1582996 | .0915969 | 1.99 | 0.046 | .004808 | -.021227 | .337826 |
| Nchild | .0527248 | .0055945 | 9.46 | 0.000 | .788161 | .04176 | .06369 |
| Urban* | .0075569 | .0114638 | 0.66 | 0.512 | .672025 | -.014912 | .030025 |
| obs. P | .2004207 | | | | | | |
| pred. P | .1773379 | (at x-bar) | | | | | |

(*) dF/dx is for discrete change of dummy variable from 0 to 1
z and P>|z| are the test of the underlying coefficient being 0

Source: IHS 1997

[24] Bulgaria is administratively divided into nine regions (provinces).

[25] Elasticities are estimated at the means.

84. **Families hit by unemployment** are more often poor. All else equal, people from a family stricken by unemployment (i.e. at least one family member is unemployed) face odds of poverty around 16% higher than people from families which do not suffer from unemployment (Table 3.8).[26] This is a significant (at a 10% significance level) although not a dramatic difference. Unemployment of a family member increases the risk that the family will be poor, but the increase is modest.

85. The relationship between labor market status of household members and poverty is summarized in Table 3.9. While unemployment of one family member raises the risk of poverty only moderately, the "unemployment syndrome', when two or more family members are unemployed multiplies it. The incidence of poverty among families hit by unemployment syndrome is 2.7 times higher than among families not stricken by unemployment. In comparison, the incidence of poverty among families where one person is unemployed is "only' 1.3 times higher. As a result, 45% of people from families suffering from the unemployment syndrome are in the bottom quintile of expenditure distribution.

[26] This estimate should be treated with due caution as it is likely to exhibit an upward bias. This results from the fact that poverty and unemployment of a family member are simultaneously determined and thus unemployment is not a truly exogenous variable. For example, some family may decide to look for a job – i.e. to become unemployed – because of poverty. This is likely to lead to the "endogeneity bias". Correspondingly, the regression coefficient (the odds ratio) provides an upper bound estimate of the impact of unemployment on poverty.

**Table 3.8 Logit estimates of the impact of unemployment of a family member on poverty**

Logit Estimates — Number of obs = 6656; chi2(22) = 1065.21; Prob > chi2 = 0.0000; Log Likelihood = -2801.9537; Pseudo R2 = 0.1597

| botm20 | Odds Ratio | Std. Err. | z | P>\|z\| | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| UE memb | 1.164411 | .094167 | 1.882 | 0.060 | .9937308 | 1.364406 |
| Male | .7894048 | .0742166 | -2.515 | 0.012 | .6565584 | .9491311 |
| Age39 | .701264 | .1441429 | -1.726 | 0.084 | .4687264 | 1.049165 |
| Age49 | .7935878 | .1541158 | -1.190 | 0.234 | .5423635 | 1.16118 |
| Age99 | 1.000332 | .191861 | 0.002 | 0.999 | .6868882 | 1.456808 |
| SecGen | .7071329 | .0839176 | -2.920 | 0.003 | .5603848 | .89231 |
| SecVoc | .4924512 | .0503959 | -6.922 | 0.000 | .4029527 | .6018281 |
| College | .8736764 | .1305338 | -0.904 | 0.366 | .6518906 | 1.170918 |
| Univ | .3199414 | .0549439 | -6.636 | 0.000 | .2285033 | .4479693 |
| Turkish | 1.812572 | .2190602 | 4.921 | 0.000 | 1.430285 | 2.297038 |
| Gypsy | 8.073982 | 1.167926 | 14.439 | 0.000 | 6.080774 | 10.72054 |
| Other | 2.157909 | .8962016 | 1.852 | 0.064 | .9561377 | 4.870189 |
| Nchild | 1.41142 | .0550035 | 8.843 | 0.000 | 1.30763 | 1.523449 |
| Urban | .9613453 | .0776594 | -0.488 | 0.626 | .8205738 | 1.126267 |
| Iregio_2 | .465549 | .0736718 | -4.831 | 0.000 | .3414013 | .6348421 |
| Iregio_3 | .5994887 | .0871023 | -3.522 | 0.000 | .4509271 | .7969952 |
| Iregio_4 | .8095248 | .1154333 | -1.482 | 0.138 | .6121446 | 1.070548 |
| Iregio_5 | .4178399 | .0777266 | -4.691 | 0.000 | .2901813 | .601659 |
| Iregio_6 | 1.297696 | .1681756 | 2.011 | 0.044 | 1.006609 | 1.672957 |
| Iregio_7 | .7788103 | .1223909 | -1.591 | 0.112 | .5723536 | 1.059739 |
| Iregio_8 | 1.387893 | .1857901 | 2.449 | 0.014 | 1.067604 | 1.804272 |
| Iregio_9 | .3779052 | .0610437 | -6.024 | 0.000 | .2753511 | .5186556 |

Source: IHS 1997

**Table 3.9 Unemployment and poverty**

| Variable | Sample share | Poverty share | Poverty incidence |
|---|---|---|---|
| **Labor force status of household head** | | | |
| Employed | 50.1 | 42.6 | 17.0 |
| Unemployed | 7.1 | 10.3 | 29.0 |
| Out of the labor force | 42.8 | 47.1 | 22.0 |
| **Unemployed household member** | | | |
| Yes | 22.8 | 34.3 | 30.0 |
| No | 77.2 | 65.7 | 17.0 |
| **Number of unemployed household members** | | | |
| None | 77.2 | 65.7 | 17.0 |
| One | 15.4 | 17.4 | 22.5 |
| Head | 3.5 | 2.4 | 13.9 |
| Spouse | 3.0 | 3.2 | 21.3 |
| Son/Daughter | 8.6 | 11.6 | 26.8 |
| Two or more | 7.4 | 19.9 | 45.4 |
| **Number of earners in the household 1)** | | | |
| None | 53.1 | 65.7 | 25.0 |
| One | 21.2 | 16.0 | 15.2 |
| Two or more | 25.7 | 18.3 | 14.4 |

**Note**: Poverty = bottom quintile of per capita expenditure distribution.

1) Households with at least two persons of working age (16-64).

Source: IHS 1997

86. The risk of poverty critically hinges on the labor force status of the family's head. Among families where the head is unemployed, the incidence of poverty is 1.7 higher than among those where the head is employed. However, this risk ratio to a large extent reflects the fact that often the unemployment of the household head is coupled with unemployment of another household member. If one focuses on households where only one person is unemployed, then actually the incidence of poverty is higher in households where unemployed are secondary earners (spouses or children), than in households where unemployed is the head. This unexpected result may reflect that unemployment often is the effect as well as the cause of poverty. Specifically, secondary earners in poor households have a stronger incentive to look for a job, and thus be unemployed if the jobs are not available. In simple terms, in poor families children often need to look for a job, while in well-to-do families they can afford to be out of the labor force (e.g. to study), or have better chances to have a job (for example, because they are better educated).

87. It is often assumed that unemployment of secondary earners, in contrast to that of primary earners, is not indicative of poverty. The rationale behind this view is that the impact of the unemployment of secondary earners, e.g. young family members, is mitigated by employment of the primary earner and possible other family members. The pattern observed in Bulgaria does not conform with this view. Table 3.10 shows the

associations between one's labor force status and poverty. It proves that, contrary to the received wisdom, unemployment of secondary earners often does translate into poverty.

**Table 3.10 Incidence of poverty by individuals' labor force status**

| | Labor force status | | |
|---|---|---|---|
| | Employed | Unemployed | Inactive |
| | *In percent* | | |
| All workers | 14.3 | 31.6 | 20.0 |
| Males | 14.3 | 32.0 | 19.0 |
| Females | 14.3 | 31.3 | 20.8 |
| Young (15-24) | 17.4 | 33.1 | 19.7 |
| Prime age (25-54) | 14.1 | 31.8 | 27.8 |
| Older (55+) | 12.6 | 13.3 | 18.3 |

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Note: An individual is considered poor if he is in the bottom quintile of per capita expenditure distribution.
Source: Integrated Household Survey 1997; World Bank staff calculations.

88. Unemployed women are as often poor as unemployed men. Both unemployed women and men are over two times more likely to be poor than their employed counterparts. Thus, in Bulgaria female unemployment has equally detrimental impact on poverty as male unemployment.

89. Young unemployed workers are somewhat more likely to be poor than prime age workers. However, the high incidence of poverty among unemployed youth can only partly be attributed to unemployment. In fact, in the case of young persons unemployment increases the risk of poverty (relative to that faced by an employed person) somewhat less than in the case of prime age workers. Interestingly, unemployment does not seem to harm older workers.

90. The fact that unemployment raises the risk of poverty less in the case of young workers than in the case of older workers does not imply that youth unemployment should be of no concern. First, the increase in the risk of poverty due to unemployment is significant even in the case of young workers. Second, and more importantly, the poverty incidence among unemployed youth is very high, in fact somewhat higher than among prime age workers.

91. **Families with a low paid household member are not disproportionately often poor.** Paradoxically, the presence of a low paid family member is associated with a lower risk of poverty (Table 3.11). The likely reason for this is that often low paid family members are secondary earners who supplement income provided by primary earners. In other words, families with a low paid earner are often two-earner families, which reduces the risk of poverty.

92. However, if a household head is low paid, and especially if both the primary and the secondary earners are low paid then the risk of poverty increases. Still, it is

substantially lower than among families hit by unemployment. This reflects the simple truth that it is better to have a job, even if it's a low paid job, than to be jobless.

93. Having a low paid job not necessarily leads to poverty (while not having a job does). The incidence of poverty among low paid workers is not much higher than among middle paid workers (Table 3.12). It is only high wages (above 1.5 times the median) that substantially reduce the risk of poverty. This has important policy implications: raising the minimum wage will not bring about a significant reduction in the incidence of poverty. To the contrary, it can increase poverty to the extent it leads to higher unemployment.

**Table 3.11 Low pay and poverty**

| Variable | Sample share | Poverty share | Poverty incidence |
|---|---|---|---|
| **Wage status of household head** | | | |
| Low | 18.9 | 34.7 | 24.5 |
| Middle | 42.8 | 51.2 | 15.9 |
| High | 38.3 | 14.1 | 4.9 |
| **Low paid household member** | | | |
| Yes | 61.7 | 32.8 | 17.1 |
| No | 38.3 | 67.2 | 21.7 |
| **Number of low paid household members** | | | |
| One | 22.5 | 17.7 | 15.8 |
| Head | 7.1 | 7.1 | 20.0 |
| Spouse | 8.4 | 4.7 | 11.2 |
| Son/Daughter | 7.0 | 5.9 | 17.0 |
| Two or more | 15.8 | 15.0 | 19.0 |

**Note**: Poverty = bottom quintile of per capita expenditure distribution.
Source: IHS 1997

**Table 3.12 Incidence of poverty by individuals' wage status**

| | Earnings level | | |
|---|---|---|---|
| | Low | Middle | High |
| | *In percent* | | |
| All workers | 17.4 | 14.0 | 4.6 |
| Males | 19.6 | 13.9 | 4.7 |
| Females | 15.9 | 14.1 | 4.4 |
| Young (15-24) | 18.9 | 15.1 | - |
| Prime age (25-54) | 17.7 | 14.3 | 4.9 |
| Older (55+) | 10.5 | 9.6 | 3.9 |

Definition of earnings categories:

Low earnings = earnings below 2/3 times the median earnings;

Middle earnings = earnings between 2/3 and 1.5 times the median earnings;

High earnings = earnings above 1.5 times the median earnings.

Source: Integrated Household Survey 1997; World Bank staff calculations.

94. Low paid men are more often poor than low-paid women. At the same time, men benefit more from higher earnings. If a men moves from a low-paying job to a middle paying job his risk of poverty is reduced by almost 30%, while in the case of a women it is reduced by only 11% . A probable explanation of this is that low-paid men are often primary earners whose families live on their single earnings. In contrast, women are often secondary earners, who provide additional income which takes their family out of poverty. This implies that the greater availability of low paid jobs, which can be taken by secondary earners – including women – may have a positive impact on poverty. In this context, the widening of earnings distribution – if it gives rise to more jobs – can be beneficial from the viewpoint of poverty reduction.

95. Young workers suffer from low wages to the same degree as prime age workers. That is low paid young people do not face a lower risk of poverty than older workers, to the contrary, they are more vulnerable. For them getting a middle paying job reduces the probability of poverty by 20% – to the same extent as in the case of prime age workers, but substantially more than in the case of older workers (who even if low paid are seldom poor). This means that in Bulgaria young workers are not necessarily secondary earners, whose low earnings are compensated by higher earnings of other family members. It also means that young low-paid workers often live in poor families and their contribution is not sufficient to take their family out of poverty.

## Conclusions

96. The effective labor supply of the poor is much lower than that of the non-poor. The poor are disproportionately often unemployed or out of the labor force. The latter category is likely to include "discouraged workers": persons who would like to work, but ceased their job search effort when it proved futile.

97. Many of the poor do work, but their "earning power" is weaker than that of the non-poor. Thus, the "working poor" account for a substantial proportion of all poor. To a large extent this reflects the fact that the poor are employed in low productivity industries, such as agriculture. However, many of the poor have low paying jobs in social services.

98. In worker families poverty is a consequence of low earning capacity and low effective labor supply. Importantly, both factors tend to go hand in hand: households with lower earning power tend to have a lower number of earners. In other words, households with low earning capacity are not willing or not able to overcome their disadvantage by increasing the number of working family members.

99. Poverty in Bulgaria is linked to local labor market conditions. The incidence of poverty is higher in regions where the unemployment rate is higher and the going wage is lower. Poverty seems more sensitive to changes in the wage level than in unemployment. A 10 percent increase in the average wage in the region would bring about a larger reduction in poverty than a 10 percent fall in the unemployment rate.

100. All else being equal, families hit by unemployment are more often poor than families that are not. However, the presence of an unemployed family member increases the risk of poverty only moderately. It is the "unemployment syndrome", when two or more family members, including the household head, are unemployed which pushes families into poverty.

101. Unemployment of secondary earners, including youth and women, is as often associated with poverty as that of primary earners. Thus, in the Bulgarian context the view that unemployment of secondary earners should be of less concerns as it does not have a strong impact on poverty is not valid. Better employment opportunities for secondary earners are key to reducing poverty. This involves the growth in the number of low paid jobs (for example in services) which, is likely to contribute to poverty reduction, providing that these jobs reduce unemployment among secondary earners.

102. Families with an low-paid earner are not disproportionately often poor. Similarly, having a low-paid job not necessarily leads to poverty. However, households where the two earners, including the household head, are low paid are at a high risk of poverty.

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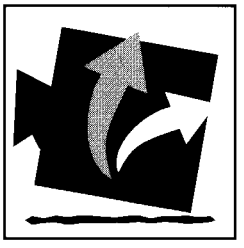

## Summary Findings

Economic transition in Bulgaria has been associated with the emergence of unemployment, the fall in real wages and a substantial increase in wage inequality. The ranks of low paid workers have grown, and their relative wage status has substantially deteriorated. Unemployment is of long duration. A part of the problem is that the unemployed have excessive wage expectations. Their reservation wages far exceed the wages that employers actually offer for people of given qualifications. The reservation wages hardly fall with the duration of unemployment, which implies that job search is not adaptive. The receipt of unemployment benefits does not seem to reduce the job search effort. The transition hit the hardest the low skilled workers among whom both the incidence of unemployment and low-pay is the highest. Poverty in Bulgaria tends to be a result of both low (relative) earnings and low household labor supply, which often go hand in hand. However, work does not keep families out of poverty: the 'working poor' account for one-third of all poor. Moreover, poverty incidence is quite high even among families with two earners. Thus, Bulgaria does not conform to the usually observed pattern whereby two earners effectively protect against poverty.

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